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My CV is attached. For fifteen years, I have been researching, writing, and speaking (to academic and professional groups) about the cultural issues attendant to dog-keeping, with a particular focus on the social dynamics of dog-breed blaming and the literature of dog bite injuries published by human health care professionals. I am a co-author of articles in the *Journal of Veterinary Behavior*, the *Journal of the American Veterinary Medical Association*, and the *Journal of Applied Animal Welfare Science*. I am a co-author of manual of advice for first responders encountering dogs, that was published by the U.S. Department of Justice.

I have investigated the peer-reviewed literature of dog bites published by human health care professionals, with emphasis on its rhetorical and cultural factors. This work was the starting point for “Defaming Rover: Error-Based Latent Rhetoric in the Medical Literature on Dog Bites.” I have studied problems with the use of sources in this same literature. I have also studied the reliably identifiable and potentially preventable factors co-occurring in dog bite-related injuries.

I have been asked to provide my opinions based upon this experience. The first part of my report is a summary of my research on the culture of dog-keeping and dog-breed blaming. The second two parts are rebuttal opinions of expert reports submitted by Williston.

I have not served as an expert witness previously. I am not charging a fee. The opinions expressed are my own.

THE HISTORY AND DYNAMICS OF DOG-BREED BLAMING

The popularity of a group of dogs can shift quickly, being an example of a social contagion.¹ A contagion, in this usage the rapid communication of an influence, can similarly spread fear or panic concerning a group of dogs. Such fear contagions center on the dog, at the expense of recognition of their relationships with, and complete dependence upon, human beings.

Slave owners employed dogs to track slaves attempting to flee. The term “bloodhound” was applied to such dogs.² Whatever the dogs’ genetics or appearance, they became pawns in the fierce political argument between North and South. Slave-dog owners extolled the virtues of their dogs, The anti-slavery press railed at the notion of dogs being used against human beings and ascribed a supposedly “bloodthirsty” nature to the dogs.³

The most influential “media” to glamorize bloodhound dogs were the stage productions based upon the bestselling American novel of the 19th century, UNCLE TOM’S CABIN.

¹ H. Herzog, “Forty-two Thousand and One Dalmatians: Fads, Social Contagion, and Dog Breed Popularity,” *Society & Animals*, vol. 14, no. 4.

² Campbell, J, “The Seminoles, the ‘bloodhound war,’ and abolitionism, 1796-1865,” *Journal of Southern History*, May, 2006.

³ A. Thomas, *The Gospel of Slavery: A Primer of Freedom*. New York: T.W. Strong, 1864

“Tom Shows,” as they were called, thrilled audiences well into the 20th century.⁴ Promoters advertised their productions with fearsome images of slave-catching dogs about to set upon a terrified mother and her infant son.⁵ This imagery was so potent that in 1886, the State of Massachusetts banned dogs the legislature described as “bloodhounds.”⁶

The identifier “bloodhound” even influenced coverage of a dog bite incident, presumed to involve “bloodhounds”. While the injuries apparently were minor, *The New York Times* found the incident newsworthy because of the resonance of “bloodhound”, publishing a story subtitled, “Impromptu Open-Air Performance of ‘Uncle Tom’s Cabin’ on First Street.”⁷

More than two decades later, in 1925, bloodhounds could still play villains, in the Rin Tin Tin film *BELOW THE LINE*.⁸

Notwithstanding Rin Tin Tin’s popularity, German shepherd dogs were not immune from demonization. A New York City magistrate, James J. Conway, urged a ban of German shepherd dogs (called police dogs in the usage of the time), describing them as “savage, vicious, and are bred from wolves.”⁹

In 1929, the Federal Parliament of Australia banned the importation of unsterilized German shepherd dogs into the country. One reason given was that they had wolf blood in their veins.¹⁰

A negative association of dogs with wolves arose in the 1870’s, in connection with a much smaller dog. Absent a scientific explanation for the spread of rabies, some physicians believed that certain breeds of dogs were disproportionately responsible, among them the Spitz. Many believed that the Spitz was especially vulnerable because of an ancestral (and unique?) tie to the wolf.¹¹

Condemnation of the Spitz followed. According to *The New York Times*, there were four venomous beasts in the U.S.: the rattlesnake, the copperhead, the moccasin, and the Spitz. *The Times* also condemned anyone who would keep a Spitz. “The keeper of a Spitz is deficient in those qualities which secure the respect and love of high-toned and intelligent dogs.”¹²

⁴ Staff, “The Theatre: Tom Shows,” *Time Magazine*, April 8, 1940.

⁵ A selection of Tom Show posters can be seen at:

<http://utc.iath.virginia.edu/onstage/images/tspostersf.html> (Accessed January 15, 2022)

⁶ “An Act concerning the keeping of dogs known as bloodhounds” *The Revised Laws of the Commonwealth of Massachusetts*, Chapter 340, approved June 29, 1886.

⁷ “Bloodhounds attack woman,” *The New York Times*, September 23, 1898

⁸ M. Hall, “A Dog Hero,” *The New York Times*, September 21, 1925.

⁹ “Ban on police dogs in Queens urged by Magistrate Conway,” *The New York Times*, January 7, 1925. The term police dog was not a reference to their use by the authorities, but a descriptor applied to dogs that appeared to be German shepherd dogs.

¹⁰ Working German shepherd dog Club of Australia, “The infamous ban.” <https://www.wgsdca.org.au/post/the-infamous-ban> (Accessed January 16, 2022)

¹¹ Teigen, P.M. “Legislating Fear and the Public Health in Gilded Age Massachusetts,” *Journal of the History of Medicine*, vol 62, April 2007.

¹² “A Venomous Beast,” *The New York Times*, November 17, 1876.

Even medical journals concurred.¹³

During the legislative session of April of 1876, the Long Branch (New Jersey) Commission offered a resolution to ban Spitz dogs from the town limits and make it lawful for Spitz to be killed on sight.¹⁴ The State of Massachusetts considered banning spitz dogs, though no ban was ever enacted.¹⁵

There is no peer-reviewed evidence that one kind of a dog is more likely to bite or injure a human being – or to cause zoonotic disease -- than another kind of dog. Nevertheless, a contagion enveloped the pit bull, and has resulted in governmental overreach and misdirected public policy.

Early in the 20th century, as bloodhounds played movie villains and German shepherd dogs were described as “bred from wolves”, pit bull dogs enjoyed an excellent reputation. An American Bull Terrier (i.e. pit bull) had symbolized the American character on a World War One propaganda poster. “Tighe”, a pit bull type dog, had helped sell Buster Brown shoes. Pete the Pup, best friend of the child characters in the Our Gang comedy films, and one of the most popular animal stars of the era, was a pit bull.

Beginning in the 1970’s, humane agencies and members of the U.S. Congress sought to raise awareness of dog fighting, as part of a campaign to secure passage of Federal laws aimed at the people who fight dogs. Major news outlets published reports on dog fighting, the first of which appeared in *The New York Times* August 15, 1974.¹⁶ Additional coverage followed. The early stories were, by and large, confined to describing the extent of the criminal enterprise, its economics, and the specific cruelties associated with conditioning dogs for fighting, well as graphic depictions of their fate in the pit.¹⁷

The narrative centered on human criminality. For example, commenting three days after the first *New York Times* story, the Wilmington, North Carolina *Star-News* ran an editorial, which stated in part:

*The dog is a loving, giving, personally dedicated animal capable of unmeasurable devotion and with a capacity for trust that knows no bounds. These qualities, and the qualities of basic humanity and decency are something the men who breed these animals and attend these fights are totally lacking in and would hardly understand if confronted with them.*¹⁸

Congress amended the Animal Welfare Act in 1976. However, comparable to what happened to the bloodhounds because of their association with slave catchers, the campaign against the people who fight dogs soon captured all dogs that resembled physically the dogs

¹³ Excerpts from medical journals obtained from B. Dickey, *PIT BULL: THE BATTLE FOR AN AMERICAN ICON*, New York: Alfred A. Knopf, 2016.

¹⁴ “An edict against spitz dogs,” *The New York Times*, April 7, 1878

¹⁵ Teigen, P.M. op. cit.

¹⁶ W. King, “Dog Fighting: Illegal, Brutal, Growing,” *The New York Times*, August 15, 1974.

¹⁷ A search for news stories on the subject of “dog fighting” published during the period August 15, 1975 through December 31, 1974 produced of 87 articles.

¹⁸ Editorial, “Dogs Bred for Death,” *Wilmington Star-News*, August 18, 1974.

the criminals used for fighting. The entire population, whatever their origin and condition of life, became linked with a criminal activity.¹⁹

As with bloodhounds and Spitzes, a fear-inducing mythology concerning supposed preternatural characteristics developed. The following two items constitute a very partial listing. In 1982, the Los Angeles *Times* reported the testimony of a Sheriff's Department investigator that "pit bull" dogs were "pound for pound, probably the *strongest animal in the world* [emphasis added]."²⁰ This claim was absurd. An essay in *Rolling Stone* in 1987, ignoring the fact that the jaws of canines all operate in the same manner, reported that a pit bull dog could hold an object firm with its top teeth, and then grind with its bottom teeth.²¹

As with bloodhounds, a story involving pit bull dogs acquired a different meaning, because of the resonant, fear-laden narrative. The mere mention of pit bull summoned that narrative. A positive story might evoke sympathy, but it also reminded readers of the fear narrative. If the story were negative, the fear narrative arose in full force, as Aladdin had summoned the genie by rubbing the magic lamp.

The narrative of fear, danger and deviance spread in the manner of a contagion, provoking what amounted to a moral panic.²² In July, 1987, *Sports Illustrated* published a long cover story about pit bulls, "Pit Bull, Friend and killer."²³ Time, Inc., SI's parent company, supported that story the same month with articles in other national publications: *Time* published, "Time Bomb on Legs";²⁴ and *People* went with "An Instinct for the Kill."²⁵

In 1989, the City and County of Denver, Colorado banned pit bull dogs. In 2009, when queried by a reporter, the Director of Denver Control was unable to say whether the ban had reduced the number of dog bite injuries. The same story reported that, though Denver had fewer than twice as many citizens as Boulder, for the period 1995-2006, but approximately six times as many dog bite injury hospitalizations.²⁶

The contagion has not respected international boundaries. Nor has it resulted in better public safety outcomes.

Great Britain enacted its Dangerous Dogs Law in 1991. The law banned dogs it described as used for fighting.²⁷ A recent study found that between 1998 and 2018, the rate of dog bite admissions to British hospitals had more than doubled.²⁸

¹⁹ News stories and even academic articles about the dogs, whatever the main subject, frequently recited the history of use for pit fighting.

²⁰ N. Graham, "Prosecution Wins Convictions in Tough Arena: Pit Bull Fighting," *Los Angeles Times*, March 28, 1982.

²¹ M. Sager, "A Boy and His Dog in Hell," *Rolling Stone*, July 2, 1987.

²² S. Cohen, *Folk Devils and Moral Panics* (Third edition), London: Routledge, 2002.

²³ E.M. Swift, "The Pit Bull: Friend and Killer," *Sports Illustrated*, July 27, 1987

²⁴ D. Brand, "Time Bomb on Legs," *Time*, July 27, 1987

²⁵ M. Green, "An Instinct for the Kill," *People*, July 6, 1987

²⁶ P. Marcus, "Do dog breed bans work?" *Denver Daily News*, March 3, 2009.

²⁷ Dangerous Dogs Act of 1991, Chapter 65

²⁸ J.S.P. Tulloch et al., "English hospital episode data analysis (1998-2018) reveal that the rise in dog bite hospital admissions is driven by adult cases," *Nature* 2021. (Note: the study adds that the rate among children had not declined, notwithstanding the breed ban.)

In 2005, Ontario, Canada banned pit bulls.²⁹ In 2010, despite reports that the ban had failed to reduce dog bites, one newspaper editorialized in favor of its continuance. The *Globe and Mail* wrote that it is “disingenuous . . . to imply that the goal of the Ontario legislation was . . . a substantial reduction in dog bites.”³⁰ The paper believed that it was more important to control pit bulls, whether doing so had a beneficial public health outcome. The *Globe and Mail*’s analysis reflects differing responses to differently perceived threats.³¹ The editorial reveals a strong concern/fear over pit bulls, and a much weaker concern/fear over dog bites.

“ . . . fear— more than danger or risk—is a pervasive emotional orientation that calls for strong action against those responsible. The remedy usually involves state authorities taking more control.”³² A fear-laden narrative concerning a group of dogs makes us more likely to consider separate regulation of such dogs perfectly reasonable, and to defend such regulation, ignoring or dismissing the decades-long consensus among animal experts that animal owners are key to community safety.³³

As will be shown below, the medical community, influenced by popular culture, is not immune.³⁴ Human health care professionals have tolerated a lower standard of rigor for some factors than for others, and have misdirected the emphasis in dozens of published studies.

²⁹ “Pit Bulls – Ban and Related Controls,” Ontario Dog Owners’ Liability Act, Part IX, Paragraph 6

³⁰ Editorial, “The constancy of dog-bite levels is no argument for pit-bull emancipation,” Toronto *Globe and Mail*, April 29, 2010.

³¹ K. Witte and M. Allen, “A Meta-Analysis of Fear Appeals: Implications for Effective Public Health Campaigns,” *Health Education & Behavior*, Vol. 27(5): 591-615 (October 2000)

³² D. Altheide, “Mass Media, Crime, and the Discourse of Fear,” *Hedgehog Review*, Fall 2003.

³³ Task Force on Canine Aggression and Human-Canine Interactions, “A Community Approach to Dog-Bite Prevention,” *Journal of the American Veterinary Medical Association*, Vol 218, No. 11, June 1, 2001

³⁴ A. Arluke, D. Cleary, G. Patronek, J. Bradley, “Defaming Rover: Error-Based Latent Rhetoric in the Medical Literature on Dog Bites,” *Journal of Applied Animal Welfare Science*, <http://dx.doi.org/10.1080/10888705.2017.1387550>. Open Access.

Commentary on report of Dr. Golinko

Dr. Golinko submits an expert opinion based upon two research projects in which he participated. Those projects were retrospective analyses of hospital records in Georgia and Arkansas, for the general purpose of correlating the frequency and severity of a dog bite injury with the presumed breed of the dog. Based on these published papers, he proposes to offer an expert opinion “with regard to dog bite injuries in children.” That expert opinion should be limited to injury metrics, and lacks a firm basis in breed attribution. Further, Dr. Golinko does not discuss what might cause a dog to respond with a bite; or any factors that might co-occur in injury incidents; or dog behavior; or the dynamics of the human-canine bond; or what kind of preventative measures, including those mandated and/or facilitated by public authority, that might reduce the number of injury outcomes. His report has been influenced, in important ways by the cultural artifacts of our history with pet dogs, which I discussed earlier in this report.

His direct professional experience is anecdotal, as he acknowledges. His indirect experience consists of “stories we heard from caregivers.”

Note: Dr. Golinko and I corresponded. A copy of my letter is attached.

Both papers suffer from the same shortcomings such that they do not support breed specific regulation : 1) unverified breed identifications; 2) an assumption that the low number of identifications, however obtained, are somehow representative of the whole casefile; 3) failure to discuss that most of the cases involved either dogs identified as other than pit bulls, or not breed identified at all; and 4) implying that the policy significance of the casefile is to be found in a small sub-section of the cases, at the expense of the casefile as a whole.

Dr. Golinko’s discussion of “Characteristics of 1616 consecutive dog bite injuries at a single institution.”

1616 patients 20 years or younger qualified for inclusion. A breed attribution was available in 509 (31.3%) of the cases. For 907 (68.7%) cases, there was none. Dr. Golinko wrote that of the 509, 196 were identified as pit bull.

196 is 12.1% of the entire casefile. 87.9% of the cases (N = 1420) involved dogs either labelled as other than pit bull, or not breed identified at all.

Dr. Golinko has little to say about those 1420 incidents, or about prevention of dog bite-related injury generally. This speaks directly to the issue I have raised: spotlighting and condemning certain kinds of dogs (Spitz, bloodhound, German shepherd dog, pit bull) is influenced by a social/cultural environment. Incidents associated with those dogs have more meaning, more cultural salience, than other incidents, and may provoke a more emotion-laden discussion.

Figure 1 in Dr. Golinko's report, which cannot be shown to reflect the entire casefile, is a scare tactic that illustrates my point.

With respect to surgical patients, the same questions obtain: how was the dog identified? What different meaning should we ascribe to the other surgical cases? Do Dr. Golinko or his colleagues have any suggestions about how to prevent injuries this serious, whatever kind of dogs is believed to have caused it? Isn't the goal the prevention of injury?

See Table 2 of "Characteristics." 753 of the dogs were described as family dogs. If only 509 of the dogs had breed labels, at least 244 of the dogs in the casefile were family dogs with no breed label. It is possible that some non-family dogs were breed labelled, which would mean that even more than 244 of the family dogs were not breed identified. This raises the question of what the other family-dog owners knew about their dog, or the reliability of any breed label they had.

Similar papers have low rates of breed identification and unreliable sources.

On City 373, Dr. Golinko writes in his report, "However, in effect, since there was no bias in NOT independently verifying any breed, one can assume pit bulls might have been incorrectly identified as much as any other breed. Even accounting for this uncertainty, the data is compelling." Contrary to Dr. Golinko's opinion, Dr. J Sacks and his colleagues offered this qualification to breed assignments: ". . . to the extent that attacks by 1 breed are more newsworthy than those by other breeds, our methods may have resulted in differential ascertainment of fatalities by breed. [and] because identification of a dog's breed may be subjective (even experts may disagree on the breed of a particular dog), DBRF (dog bite-related fatalities) may be differentially ascribed to breeds with reputations for aggression."³⁵

Dr. Golinko's discussion on "Characteristics of dog bites in Arkansas."

This paper suffers similarly: a low rate of breed attribution, and the lack of breed identification confirmation. A total of 740 patient records were examined, including 574 children who presented at Arkansas Children's Hospital (ACH) and 196 children at University of Arkansas for Medical Sciences (UAMS). 34% of the 574 ACH cases had breed labels (N = 196.). Of the 196, 28.1% of dogs were identified as pit bull (N = 55). This is less than 10% of the total casefile. The other 519 cases (N = 90.4%) either cited a different breed or included no breed identification at all.

Dr. Golinko's concluding opinions

Dr. Golinko recognizes the limitations of the breed identifications in both papers. Nevertheless, because 46 different breeds were named in the Atlanta study, Dr. Golinko believes that there was no reporting bias, and that the sample of cases for which breed labels were available may have similar characteristics to the 65-70% of the cases that didn't. I do not agree. Unreliable sourcing and low percentage of identification do not lead to his conclusion.

³⁵ J. Sacks et al., "Breeds of dogs involved in fatal human attacks in the United States between 1979 and 1998," *Journal of the American Veterinary Medical Association*, Vol 217, No.6, September 15,2000.

Dr. Golinko writes: “. . .when showed a picture of a chihuahua [sic] and golden-doodle and pitbull-breed, I find it difficult to believe that anyone who owns or is frequently around dogs or lives in a place where dogs are commonplace, would not correctly distinguish the obvious differences in such breeds.” This is a false equivalence. First, the only dog breeds that people can guess are ones they have seen or otherwise heard about. This is a standard of familiarity, not accuracy. Second, in surveys conducted and reported, almost six thousand persons engaged in animal related professions did poorly in naming even one of the breeds in a mixed-breed dog. They regularly disagreed with each other.³⁶

Third, to use as examples three such different-looking dogs does not address the issue. The fact that people might assign different labels to dogs of such differing size and appearance does not mean that their guesses would be correct. Could an observer reliably identify a Miniature Pinscher, or Portuguese water dog, or an American bulldog? Could he/she make a visual inspection and determine reliably whether a dog has one or more of the “pit bull” breeds in its heritage? Or know a vizsla if he/she saw one?

Dr. Golinko’s papers do not constitute a defense of breed specific legislation. Dr. Golinko did write in his witness report (City 374) that the available literature “points to a strong argument for adequate government protection for the public”; but he declines to specify what that protection might consist of. In the concluding section of “Characteristics,” Dr. Golinko wrote “Parental education and supervision may be the most important measure to prevent severe dog bite injuries.” Thus, his most important recommendation appears to be a challenge for public education, not breed regulation. His studies found that dozens of breed labels have been assigned, on whatever basis, to dogs that have caused serious injuries.

Nevertheless, he has spotlighted certain kinds of dogs at the expense of general public concerns. This occurs in a social/cultural, rather than an epidemiological, context.

³⁶ V.L. Voith et al, “Comparison of Visual and DNA Breed Identification of Dogs and Inter-Observer Reliability,” *American Journal of Sociological Research* 2013, 3(2): 17-29; K.C. Croy et al, “What kind of dog is that? Accuracy of dog breed assessment by canine stakeholders,” Abstract available at <https://vetmed-maddie.sites.medinfo.ufl.edu/files/2012/05/2012-Croy-Maddies-Shelter-Medicine-Conference-Abstract.pdf> Accessed January 16, 2022.

COMMENTARY ON REPORT OF MR. BERMAN

Introduction.

3. Mr. Berman's statement that he is neither for nor against pit bulls can be questioned, given his websites citation of, and implied endorsement of, the writings of Colleen Lynn (dogs.bite.org) and Merritt Clifton.³⁷ Other more critical and dispassionate sources from the peer-reviewed literature are readily available.

Opinions

1. Given Mr. Berman's doubts about the reliability of breed identification through DNA analysis, and considering the poor correlation of breed identification by visual inspection with DNA analysis, what does he propose as an alternative? Scott and Fuller wrote that breed was not a matter of conformation (appearance) but of pedigree.³⁸

2. I have reviewed both Mr. Berman's commentary and the sources he cites. Identification of presumed breed in this literature is held to a much lower standard of confirmation than physicians tolerate for other, less culturally influenced, factors. These authors seem less reactive to injuries in general than they do to injuries presumably caused by pit bulls.

Footnote 6 refers to an abstract for a conference presentation, not a published study. No study was published. The abstract does not document the breed identifications. This same abstract is cited again in Mr. Berman's report, and again incorrectly.

Regarding Kaye et al cited as Footnote 7, Mr. Berman's statement regarding breed findings is inaccurate and incomplete. The percentage Mr. Berman quotes was not for the whole casefile. Only 51.2% of the medical records contained breed identifications at all. The identifications were not verified. 30 different breeds were included in those records. The authors of that paper also note that a significant shortcoming of the literature they studied was breed identification: "The shortcomings of most studies, and likewise of most potential dog bite legislation, is the inability to determine with any accuracy the exact breed of a dog , . . poor reporting of dog breed identification in the medical record also leaves a large number of biting dogs unidentified, which clearly biases the overall results."

Brice et al (Footnote 9), discusses only 95 cases of the 242 cases they began with. Breed identifications were obtained from medical records. The orthopedic injuries were associated with larger dogs.

Mr. Berman refers to Tang et al (Footnote 10) as a study. It is a letter to the editor. In response, another orthopedist reminded readers of the poor correlation between breed assignment by visual inspection and that by DNA analysis. The writer also suggested that prevention needs to focus on "mutable" factors, not labeling.³⁹

³⁷ See <https://www.dogbite-expert.com/statistics.htm> accessed January 16, 2022.

³⁸ J. Scott and J. Fuller, *Genetics and the Social Behavior of the Dog*, Chicago, University of Chicago Press, 1965.

³⁹ Black, J.T. "To the editor," *Journal of Orthopedic Trauma*, January 2019, Volume 33, Issue 1, p e36.

The second author of Dr. Tang's letter is Dr. Jugpal Arneja, whom Mr. Berman has misidentified elsewhere in his report.

Mr. Berman, in citing V.T. Montrose (Footnote 12), neglects to mention that the authors were not completely confident in the breed identifications obtained, nor did they conclude that their work had a breed-specific implication. Rather, they recommended, among other things, that all dogs be walked on lead around unfamiliar places, that they be well-socialized, and that owners be alert to the behavioral responses of their dogs. They advised these precautions for all dogs, regardless of breed or size.

3. There are similar sourcing issues in this part of the report. In the boldface heading, Mr. Berman expects us to equate, "consistently," with "reliably." What is consistent in the breed identifications are the cultural influences that have led these human health care professionals to tolerate a lower standard of documentation than they would accept in other factors they considered relevant.

Mr. Berman includes Dr. Avner's paper (Footnote 13), because of the connection Dr. Avner makes between "pit bull" and "unprovoked." Dr. Avner defines provoked as resulting "from a child-initiated interaction." This is an insupportably narrow definition.⁴⁰ Meanwhile, Mr. Berman distinguishes between "without provocation," and "truly provoked," writing that the latter may not result in serious injury, while the former may involve multiple bites to multiple locations. Dr. Avner did not categorize his cases other than by laceration, abrasion and puncture. We cannot from this ascertain whether the cases described as provoked met Mr. Berman's criterion for seriousness. We are left with the rhetoric. The breed identifications suffer the same deficiencies as other cited works.

Regarding Footnote 15 and 16, the breed identifications used for those papers were drawn from media sources. Media sources for reliable breed identification in studies such as the two Mr. Berman cited, have since been called into question by the lead author of both of papers.⁴¹

Mr. Berman's description of Dr. Tsokos paper (Footnote 17) is misleading. Dr. Tsokos' study is a case report on four fatalities. The breed identifications are not sourced or documented. The case report has no epidemiological component. In the Discussion, Dr. Tsokos mentions Sacks et al, 2000 (See my note 35). The lead author of that paper has since questioned the reliability of the identifications contained. (See my note 41). Dr. Tsokos also uses the rhetorical flourishes I have discussed elsewhere: pit bulls holding and grinding (see the first part of my report), and the concept of "unprovoked".

Mr. Berman next refers to a "study" published by the American Association of Plastic Surgeons. (His Footnote 18). It was a presentation at the 2008 annual meeting. Nothing other than the abstract has been published. The lead author is not A. Jungpal, but Jugpal Arneja. The abstract's breed identifications are not documented or sourced. In the abstract,

⁴⁰ Arluke, A., Cleary, D., Patronek, G., Bradley, J. "Defaming Rover: Error-based latent rhetoric in the medical literature on dog bites," *Journal of Applied Animal Welfare Science*, 2017.

⁴¹ Patronek, G., Sacks, J., Delise, K., Cleary, D., Marder, M. "Co-occurrence of potentially preventable factors in 256 dog bite-related fatalities in the United States (2000-2009)," *Journal of the American Veterinary Medical Association* vol 243, No. 12, December 15, 2013.

Dr. Arneja describes some incidents as unprovoked, absent specifics. The details of the conference presentation are not available and cannot be confirmed. Dr. Arneja has published dozens of articles, but only one on dog bite-related injuries: he is a co-author, with Dr. Tang, of the essay Mr. Berman cites in Footnote 10, where he is incorrectly listed as “J. Arena.” J. Arena and Jungpal A are the same person: Jugpal Arneja.

Dr. Horswell’s study, Footnote 19, discusses the findings of chart reviews of 40 incidents. There were breed identifications on 30 of the hospital charts, but none documented. Dr. Horswell is not immune to the popular culture, as he describes, without evidence, pit bulls as having a “vice-grip.” This claim is neither sourced, nor a finding of the study. But it does both reflect, and convey, alarm.

The data in Dr. Bini’s paper, Footnote 20, can be summarized as follows: The casefile consisted of 227 incidents over a 15-year period. 28 (12.3%) of the cases were associated with dogs labelled pit bulls. The problems of breed-labelling are discussed elsewhere. The remaining 199 (87.7%) were associated either with other breed labels or included no breed identifications at all. (This percentage is comparable to the percentages in Dr. Golinko’s papers.) Following the data presentation, Dr. Bini and his colleagues add an alarmist literature review that includes, among other things, the absurd claim that dog bites are the second most costly public health problem in the United States. (Bini et al, p 796); a description of pit bulls taken from a municipal law journal (Bini Table 3, p 793); a citation of Dr. Avner’s “unprovoked” (see above); tallies obtained from a dog bite victim’s website (See Bini’s citation no. 12 p 797); YouTube; and a statistically indefensible claim that one of every 5 ER visits by children is related to dog bites (Bini, p 792).⁴²

The journal in which Dr. Bini’s paper appeared, *Annals of Surgery*, had never published anything on dog bite-related injuries or dog behavior in its 100+ year history. In response to a letter to the editor, Dr. Bini admitted that he and his colleagues were neither veterinary nor forensic experts, but that he felt qualified to discuss clinical aspects of care.⁴³ His paper, however, goes far beyond clinical aspects of care, attempting to correlate injury with presumed breed, and following attempt that with a discussion of dog and breed-specific behavior drawn from unprofessional sources, not animal experts.

Dr. Garvey’s 2014 paper (Footnote 21) again relied on breed data obtained from hospital charts. He acknowledges the uncertainty of dog breed identification. There are two dozen breeds named in the casefile, almost all of them larger dogs. Associating such incidents with the size of the dog is more reliable than venturing breed guesses.⁴⁴

⁴² Regarding children aged <18 presenting in emergency rooms, and considering only non-fatal injury presentations, for the years 2010 to 2019, the CDC estimates that 1.2 million children presented for dog bite complaints, out of a total of 76.3 million injury-related presentations, a ratio of 1 to 63.5. (Source: Centers for Disease WISQARS database.) If all presentations by children under 18, injury or otherwise, are included, the ratio would be many times higher.

⁴³ J. Bini and S. Cohen, “Reply to letter ‘Imprudent use of unreliable dog bite tabulations and unpublished sources’” *Annals of Surgery*, Volume 255, Number 5, May 2012

⁴⁴ Patronek, G., Sacks, J., Delise, K., Cleary, D., Marder, M. op.cit.

Dr. Garvey also attempted a relative risk calculation based on dog licenses issued. Animal experts do not consider such calculations possible.⁴⁵ I looked into this question at the time I first encountered Dr. Garvey's paper. His risk calculation cannot be supported. Licensing demographics cannot be shown to represent the dog population anywhere in the US. Using the available US Census data, the human population of Maricopa County in 2008 may be estimated at 3.6 million persons, living in 1.32 million households. The AVMA 2007 Sourcebook reported that 37.2% of households contained at least one dog. In fact, the average number of dogs in the household was 1.7. Even if we limit Maricopa County dog ownership to one dog per dog-owning household, Maricopa County would be housing 491,000 dogs, of whom only 122,000 were licensed. (This is not an unreasonable ratio of licensed dogs to the total dog population. License compliance in the US is low.) The unlicensed dogs are not identified, visually or otherwise. Any relative risk calculation relies on reliable data on the entire population, which clearly these authors did not have.

Mr. Berman's citation of O'Brien et al (Footnote 22) is to the abstract only, not to the paper itself. Again, the unverified breed identifications came from hospital records.

Dr. Prendes (Footnote 23) relied on hospital records for breed labels. Among the claims regarding breed, Dr. Prendes writes that more than half of the dogs involved that belonged to strangers were allegedly pit bulls. How could that have been determined?

I have discussed Dr. Golinko's paper and my correspondence with him elsewhere. (Footnote 24).

Dr. Alizadeh paper (Footnote 25) reports on 108 cases, for half of which there was no breed label assigned. 17 breeds of dogs were named, on some basis or another. The identifications were obtained from the hospital records only, and, according to the authors, could not be independently verified. Because of concentration on more complicated cases, their casefile is likely to involve larger dogs, whatever the breed label assigned.

Dr. Smith's paper (Footnote 26) is one of two discussed by Dr. Golinko. I have discussed it above.

At first, I could not locate the paper in Mr. Berman's citation (Footnote 27), because the author's name is incorrect. The author Mr. Berman listed as "Hamaravan" is, in fact, Patrick Harnarayan. I had reviewed this paper previously. It is not an epidemiological survey, but a study of two individual cases. No generalizations can be made from two cases. A correlation of injury and prevalence of a presumed breed is not part of the case series. Remarkably, the Abstract also contains the statement, "Canine attacks by Pit Bull Terriers and Rottweiler's can occur at any age and in any anatomical area of the body particularly the limbs." The case series does not lead to this conclusion. Does the author propose that some dogs generalize by victim age and body part, while others are age and limb specific? This fearsome rhetorical flourish speaks directly to the issues raised in "Defaming Rover."⁴⁶

Dr. Brice's paper (Footnote 28) is cited above as Footnote 9.

Dr. Tang's Letter to the editor (Footnote 29) is cited above as Footnote 10.

⁴⁵ Task Force on Canine Aggression and Human-Canine Interactions, "A Community Approach to Dog-Bite Prevention," *Journal of the American Veterinary Medical Association*, Vol 218, No. 11, June 1, 2001

⁴⁶ Arluke et al. op cit.

Dr. Abraham's paper (Footnote 30) is the same paper as Mr. Berman's Footnote 11. Based on the unverified identifications in the hospital records, 36 breed labels were assigned to the dogs.

Footnote 31 is the third citation of Dr. Brice's project.

Citation of Dr. Tang's letter to the editor (now as Footnote 32) has yet another variant spelling of Dr. Arneja's name. Mr. Berman now uses it to support his statement, "Pit bulls have been found to cause more serious injuries than other breeds due to their bite force and overall aggressive nature." Use of the passive voice in statements such as this is revealing. Despite the implication of Mr. Berman's statement, Dr. Tang did not study canine odontology or canine breeding and temperament.

Mr. Berman's use of the term "bite force" is emblematic of another issue I have researched, the misuse of sources. We have shown that bite force claims have no reliable professional provenance. There is no peer-reviewed work that supports his implication of any breed-specific difference.⁴⁷

In the section of his letter titled "Legislation versus responsible ownership," Dr. Tang writes that the breed-specific provision of UK Dangerous Dogs Act has produced a "mixed result." It has not. It is an unequivocal failure. The rate of dog bite-injury hospitalization has continued to rise (See Tulloch et al, cited as my note 27 above). Spain, which Dr. Tang mentions, introduced multiple regulations, requiring that all dogs be licensed and identified, and mandating strict owner responsibility with respect to all dogs. The authors (Villalbi et al) wrote that increased regulation (including regulation that applied to all dogs) was responsible for a reduction in the rate of hospitalizations; and that other factors which they were not able to identify may have contributed to the improvement (Villalbi, p 409). Dr. Tang's statement that a study in Manitoba showed that BSL in jurisdictions in Manitoba had resulted in a reduction of the rate of dog bite-injury hospitalizations in those jurisdictions is incorrect. In fact, the paper reported that the rate of dog bite-injury hospitalizations in the jurisdictions with BSL did not change.

Mr. Berman's Footnote 33 is Dr. Harnarayan again, and again his name is misspelled. As mentioned above, this paper consists of two case presentations. The Discussion section is literature review. Dr. Harnarayan concludes not by recommending breed specific regulation, but with "stronger animal control laws, public education and responsible dog ownership." (Harnarayan, p 136)

Dr. Essig (Footnote 34) also noted: "Of the 26,000 bites reported, 39.9% were attributable to a specific breed [manner of breed identification not specified] and the remaining were either unknown or mixed breed." It is revealing of the cultural influences at play that Dr. Essig writes: "Dog bites are a preventable problem. . . To better understand these traumatic events we performed an extensive literature search for dog bites that reported breed. . ." A pre-existing cultural influence has determined the limited question they wish to research. They have assumed that correlating breed with injury will solve the problem, an assumption not supported by the available literature or regulatory experience.

⁴⁷ Patronek G., Bradley, J., Cleary, D., "Who is minding the bibliography? Daisy chaining, dropped leads, and other bad behavior using examples from the dog bite literature," *Journal of Veterinary Behavior*, 14 (2016) 17-19.

Dr. Lee (Footnote 35) reports on 189 cases. She also writes that pit bulls were identified, presumably through hospital records, in 29 of the incidents, but also writes that the 29 constituted 47.5%. She must have meant that as a percentage of the cases that had any breed named at all. The 29 represented 15% of the 189 cases. The abstract does not mention what other breeds were named among the 61, or that, to all appearances, 128 cases had no breed information at all.

Mr. Berman's Footnote 36 is to "Khurram k." The lead author's last name is, in fact Khan: Dr. Khurram Khan. Again, the breed labels come from the hospital records. Dr. Khan defends the labelling, not from peer-reviewed research, but from an Ohio court decision. Dr. Khan, contrary to peer-reviewed studies published by animal experts, does not consider breed identification by DNA analysis to be necessary.

Dr. Hasoon (Footnote 37) accepts that breed in her casefile may not be accurately recorded. The total of cases for which there was no breed assignment is not given. The total number of breeds named is not given.

I corresponded with Dr. Bailey (Footnote 38). I enclose a copy of my October 2016 letter to him. (Note: In his paper, Dr. Bailey cites our conversation regarding a point about dog fighting. I don't recall that.)

Ms. Reuter Munoz' paper (Footnote) is also a retrospective study and accepts breed labels obtained from medical records.

The papers Mr. Berman has cited demonstrate repeatedly a lack of rigor in discussing matters of breed identification, as well as of canine behavior. The authors regularly tolerate a different, lower standard in these matters than they accept for other commonly measured variables such as age, gender, prior illness, weight, or any potentially confounding variable. Even when considering prevention, few considered the confounding variables co-occurring in a dog bite-injury situation that might be potentially preventable or controllable. Based upon my extensive study of the dog bite literature by human health care professionals, I trace this directly to the cultural biases surrounding dog breeds and dogs generally. I do not believe that their claims to breed-specific findings are supportable, so as to justify breed-specific regulation.

This is a summary of my opinions, which I hold to a reasonable degree of certainty, based upon my critical evaluation of the sources I have cited.

Donald Cleary